Small Business Innovation Research/Small Business Tech Transfer

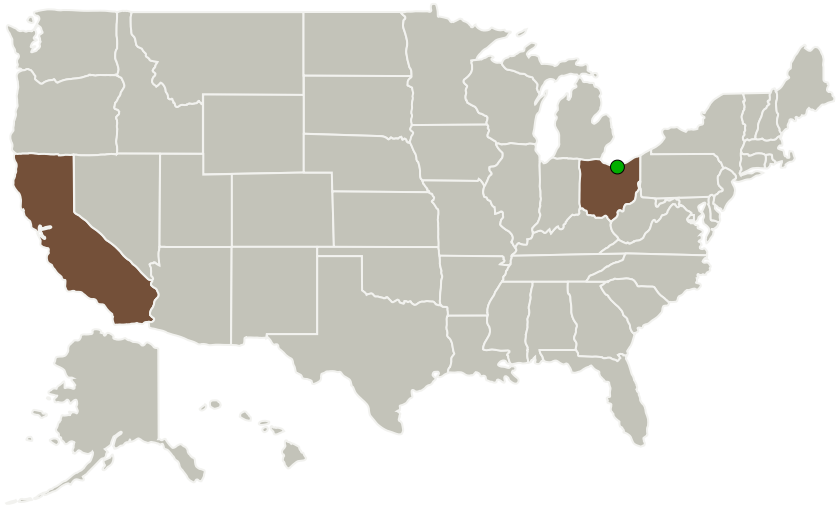
Compact Wireless EVA Communications System (CWECS), Phase I

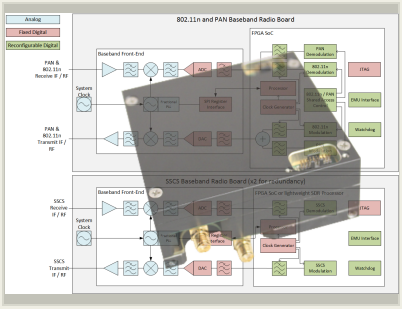
Completed Technology Project (2015 - 2015)

Project Introduction

Extravehicular Activity (EVA) systems are critical to every foreseeable human exploration mission for in-space microgravity EVA and for planetary surface exploration. Innoflight proposes developing a Compact Wireless EVA Communications System (CWECS) as a replacement and advancement of the Space-to-Space EVA Mobility Unit (EMU) Radio (SSER). The CWECS goals are to: (a) provide backward-compatibility with the existing SSCS network and SSER; (b) provide enhanced communication between the EMU and space vehicle (or ISS or future space habitat) via 802.11n, including high-speed telemetry from the EMU to the spacecraft; and (c) provide personal area network (PAN) coverage for wireless biomed devices and sensors within the EMU. The Phase I will leverage Innoflight's DeSCReeT IF-SDR, which uses cutting edge radiation-tolerant components as the foundation of a software-defined radio, and transform it into an integrated unit supporting SSCS, 802.11n and PAN. The end result of the Phase I will be a system-level design for the CWECS that meets all SWaP, radiation and waveform requirements.

Primary U.S. Work Locations and Key Partners





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Organizations Performing Work	Role	Type	Location
Innoflight, Inc.	Lead Organization	Industry Veteran-Owned Small Business (VOSB)	San Diego, California
Glenn Research Center(GRC)	Supporting Organization	NASA Center	Cleveland, Ohio

Primary U.S. Work Locations	
California	Ohio

Project Transitions

June 2015: Project Start

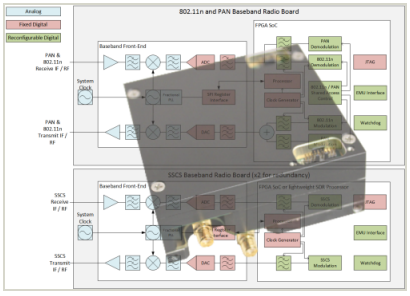
December 2015: Closed out

Closeout Summary: Compact Wireless EVA Communications System (CWECS), Phase I Project Image

Closeout Documentation:

- Final Summary Chart Image*(https://techport.nasa.gov/file/138763)*

Images



Briefing Chart Image
Compact Wireless EVA Communications System (CWECS), Phase I
(https://techport.nasa.gov/image/129482)

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
Innoflight, Inc.

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

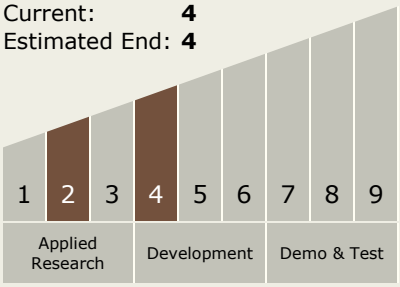
Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
Joseph Koeniger

Technology Maturity (TRL)

Start: **2**
Current: **4**
Estimated End: **4**



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Technology Areas

Primary:

- TX06 Human Health, Life Support, and Habitation Systems
  - TX06.2 Extravehicular Activity Systems
    - TX06.2.3 Informatics and Decision Support Systems

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System